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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/092,876	03/07/2002	Biing-Hwang Juang	5123-21	9962

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Eli Weiss, Esq.
Cohen, Pontani, Lieberman & Pavane
Suite 1210
551 Fifth Avenue
New York, NY 10176

EXAMINER

RIVERO, MINERVA

ART UNIT	PAPER NUMBER
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2655

DATE MAILED: 02/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/092,876	Applicant(s) JUANG ET AL.	
	Examiner Minerva Rivero	Art Unit 2655	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 March 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>3/07/02</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Objections

1. Claim 17 is objected to because of the following informalities: In claim 17, the term 'generated speech' has been interpreted by the examiner as 'generated speech characteristic', as anteceded in parent claim 16. Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-4, 8-12, 13 and 16 are rejected under 35 U.S.C. 102(e) as being anticipated by Basu *et al.* (US Patent 6,594,629).

4. Regarding claims 1, 2, 8, 9, 12, 13 and 16-17 Basu *et al.* disclose a method, apparatus and article for controlling the operation of a speech recognition device, comprising elements for and steps of:

recording at least one frame of a video image of speech articulators of a user while the user is speaking (Col. 2, Lines 34-38; *camera, archival*, Col. 3, Lines 44-46);

recording acoustic properties of speech that occurs concurrent with the recording of the at least one video frame (*acoustic feature vectors*, Col. 6, Lines 7-12);

identifying acoustic properties of speech that would be expected to be generated by a condition of the speech articulators recorded in the at least one frame of the video image (*probability associated with the visual information and a probability associated with the corresponding audio information and weighting said probabilities*, Col. 14, Lines 51-56);

examining the video frames for a face (*detecting face candidates*, Col. 2, Lines 47-52);

examining the video frames that have a face for a change of the speech articulators of the face (Col. 2, Lines 54-58; *positions of articulators*, Col. 13, Lines 12-14);

comparing the identified acoustic properties of speech with the recorded acoustic properties to determine whether the speech of the recorded properties

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emanated from the user (*evaluating audio-only data based on video-only data*, Col. 18, Lines 8-12) and

activating the speech recognition device when there is a match between the acoustic properties of speech which would be expected to be generated by the condition of the speech articulators recorded concurrent with the recording of the at least one video frame (*searching the language module for acoustic units having highest probabilities*, Col. 15, Lines 4-9; Col. 16, Lines 31-33 and 49-52; Col. 18, Lines 8-12).

5. Regarding claims 3 and 10, Basu *et al.* disclose maintaining the speech recognition device active for a preset time interval after being activated (*perform speech recognition during speech detection and none when silence is detected*, Col. 16, Line 64 – Col. 17, Line 7).

6. Regarding claim 4, Basu *et al.* disclose maintaining the speech recognition device active beyond the end of the preset time interval upon obtaining a match between the acoustic properties of speech which would be expected to be generated by the condition of the speech articulators recorded in a subsequently recorded frame of a video image with the acoustic properties of speech recorded concurrent with the recording if the subsequently recorded video frame before the fixed period of time expires (Col. 2, Lines 6-10; Col. 6, Lines 18-19; *perform*

speech recognition during speech detection and none when silence is detected, Col. 16, Lines 49-52; *eliminating 'junk' recognition and event detection*, Col. 16, Line 64 – Col. 17, Line 7). Basu *et al.* disclose having the speech recognition device active during event detections, defined as an audio signal that has a high probability of having been produced by the speech articulator information provided by the video source, the probability measure being a result of a correlation analysis of the video and audio signals.

7. Regarding claims 5, 6 and 14, Basu *et al.* disclose

a camera is used to record the video image of the speech articulators of the user (Col. 5, Lines 29-42) and

a microphone is used to record the acoustic properties of speech of the user (Col. 5, Lines 29-42).

8. Regarding claim 11, Basu *et al.* further disclose deactivating the speech recognition device at the end of the preset time interval in the absence of the occurrence of a subsequent match between the identified acoustic properties of speech that occurred at the time that the video frame of a face having a change of speech articulators with the identified acoustic properties that would be expected to be generated concurrently with the video frame (Col. 16, Lines 49-52; *eliminating 'junk' recognition and event detection*, Col. 16, Line 64 – Col. 17,

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Line 7). Basu *et al.* disclose having the speech recognition device deactivated during absence of events. Basu *et al.* define *event* as an audio signal that has a high probability of having been produced by the speech articulator information provided by the video source, the probability measure being a result of a correlation analysis of the video and audio signals.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 7 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Basu *et al.* (US Patent 6,594,629), as applied to claims 1 and 14 above, in view of Ford *et al.* (US Patent 6,711,535).

Regarding claims 7 and 15, Basu *et al.* do not expressly disclose but Ford *et al.* suggests a handheld device contains a microphone for recording the acoustic properties of speech of the user and a camera for recording the video

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image of speech articulators of the user (*mobile computer*, Col. 5, Lines 10-15 and 22-23; Col. 9, Line 2).

Therefore it would have been obvious to one ordinarily skilled in the art at the time of the invention to supplement the teachings of Basu *et al.* with a handheld device containing a microphone for recording the acoustic properties of speech of the user and a camera for recording the video image of speech articulators, as suggested by Ford *et al.*, in order to enable portability of the system.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Angell *et al.* (US Patent 6,513,003) disclose a system and method of synchronizing various data streams including video and speech, and the transcribing of the speech as a caption of the image.

Stork (US Patent 5,806,036) discloses a system that uses joint video and audio information for increasing accuracy in the speech recognition process.

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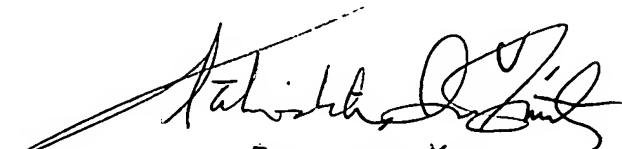
Chen *et al.* (US Patent 6,185,529) disclose a system and method of relating mouth articulations with particular phonemes, and using the resultant parameters in real-time audio and video-based speech recognition.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Minerva Rivero whose telephone number is (703) 605-4377. The examiner can normally be reached on Monday-Friday 9:00 am - 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Talivaldis Ivars Smits can be reached on (703) 305-9508. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MR 1/27/2005



TĀLIVALDIS IVARS ŠMITS
PRIMARY EXAMINER